

Hot Works & Fire Watcher Training



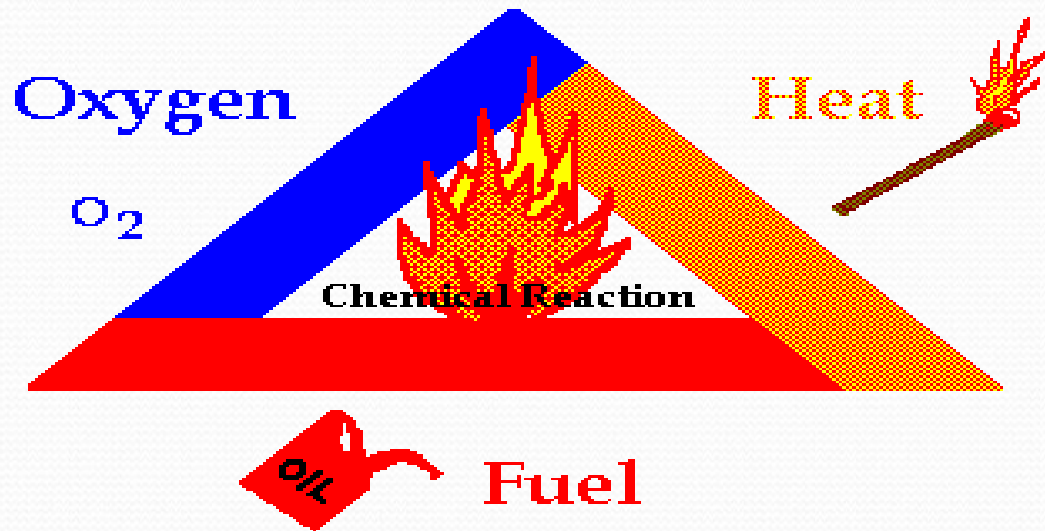
Course Content

- Theory of fire
- Classification of fire
- Hot work
- General Hazards
- Fire Watch Duties
- Identification of Firewatchers
- Work Permits
- Hot Work in a Confined Space
- Equipment Requirements
- PPE Requirements
- Fire Blanket and Anti Flash Screens
- Correct use of a Disk Grinder
- Correct use of Fire Extinguishers
- Correct use of Fire Hose



THEORY OF FIRE

Fire Triangle



Three main elements are required for fire to occur

- ◆ **AIR** (Oxygen)
- ◆ **FUEL** (Any Combustible Material)
- ◆ **HEAT** (Natural & Industrial Sources)

CLASSIFICATION OF FIRES

A Class Fire (Solid)



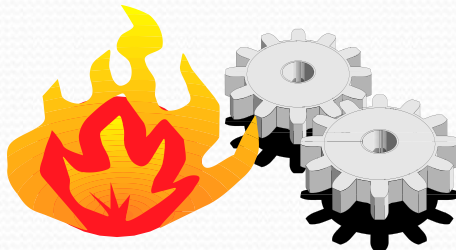
B Class Fire (Liquid - Hydrocarbon)



C Class Fire (Gas)



D Class Fire (Metal)



CLASSIFICATION OF FIRES

Not all fires are same, and they are classified according to the type of fuel that is burning. It is very important to understand the different classification of fires.



General Hazards

- Fire from sparks and spatter
- Injury/burns to personnel
- Explosions and fires from reactions with welding gases
- Damage to equipment from heat and fire
- Asphyxiation
- Electric shock
- Inhaling toxic fumes and gases
- Eye injuries from heat sources - welding/burning



Fire Watch Duties



Prior to Starting Hot Work

- ✓ Ensure required permits are in place
- ✓ Ensure safe access to work area - Green tagged scaffold, etc
- ✓ Place fire blanket in work area to contain welding slag and sparks
- ✓ Put up anti flash screens
- ✓ Ensure suitable fire extinguishers are at the workplace
- ✓ Ensure area is free of flammable materials
- ✓ Ensure that O² and Acetylene hoses are correctly connected and free from leaks. Ensure “Flash Back” arrestors are fitted
- ✓ Barricade the area if required
- ✓ Review work around intended hot work area to see what impact other activities all likely to have on the proposed work
- ✓ Keep all cables and hoses clear of walkways and hot spots



Fire Watch Duties



During Hot Work

- Do not leave the jobsite for any reason unless the work has been stopped and/or you are replaced by another fire watcher
- Stop the hot work if conditions change, e.g., gas leak, emergency nearby, etc.
- Prevent people from entering the hot work area
- Ensure fire blanket and anti flash screens remain in place.
- Ensure that all sparks and hot slag are retained
Extinguish any fires that occur
- Advise the welder's) of any danger



Fire Watch Duties



At the Completion of Hot Work

- Remain at worksite for at least 30 minutes after completion of hot work activities to ensure that no smoldering embers or slag exist.
- Remove equipment from work area and ensure area is left in a safe and tidy state. Damp down work area if required.
- Ensure that the work supervisor is notified of completion of hot work and that hot work permit is returned and signed off.
- Return Orange “Fire Watcher” vest to safety store.

Identification of Fire Watchers

- Fire Watchers will wear an orange vest with the words “Fire Watcher” marked clearly on the back of the vest.
- Vests are available in the safety store.



Hot works

Any temporary operation being performed outside of the controlled confines of a workshop area, involving open flames, or producing heat and / or sparks. This includes, but is not limited to:

Brazing, Cutting, Grinding, Ramset firing, Soldering, Torch Work, Lancing and Welding.



Work Permits

Prior to starting work, ensure that the following permits, if required, are in place:

- Startup Work Authorization (SWA)
- Confined Space Permit
- Hot Work Permit

Ensure that all permit conditions have been addressed, prior to asking a Safety Officer to inspect the work area and sign/authorize the work/permit's).

Hot Work in a Confined Space

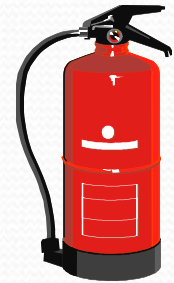
When Hot Work is undertaken in a confined space, the following precautions must be taken:

- Only commence work after a Confined Space Permit has been issued and the work space gas tested and confirmed as being safe by Safety
- Ensure adequate ventilation is maintained for the duration of the work
- Test oxygen and acetylene fittings and hoses, used in the confined space area, to ensure that they do not leak
- Ensure oxygen and acetylene cylinders are left outside the confined space
- Remove oxygen and acetylene hoses from the confined space area during meal breaks and at the completion of the work each day
- Ensure that there is a separate confined space “Hole Watch” present at the job, in addition to the fire watcher
- Employ all hot work precautions as you would for any other hot work task

Equipment Requirements

Equipment Required is as Follows:

- ✓ 6Kg Dry Chemical fire extinguisher
- ✓ Fire hose - run out and charged, if required
- ✓ Fire Blanket
- ✓ Anti flash screen
- ✓ Correct PPE
- ✓ Ventilation equipment if required
- ✓ Bucket for welding stubs
- ✓ Orange fire watcher identification vest





PPE Requirements



The following items of PPE must be worn by personnel performing Hot Work:

- Helmet, safety glasses and safety boots
- Welder to wear safety helmet with welding shield attached and safety glasses under shield
- Ordinary welding helmet complying with project welding PPE policy requirements where helmet cannot be worn
- Face shield and safety glasses when grinding
- Leather apron, spats and gauntlets
- Leather welding gloves
- Long sleeved shirts
- Dust mask or respirator where required under permit conditions



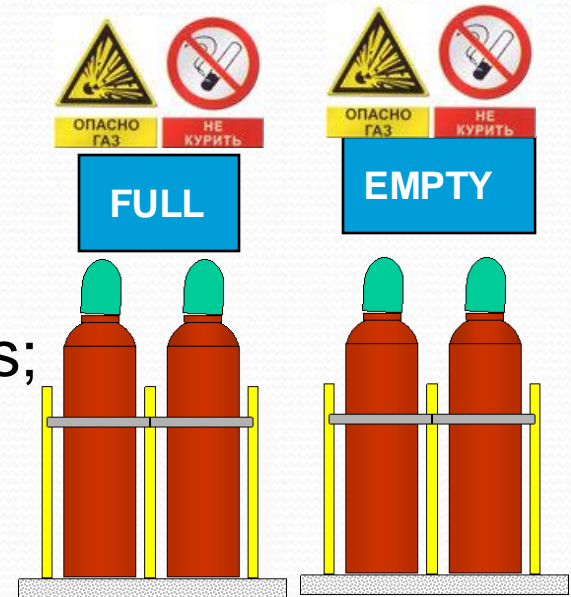
Fire Blanket and Anti Flash Screens

- Fire Blanket must be used where there is a possibility of hot sparks and welding slag fall to areas below where welding is being performed
- Fire blanket must be free from damage and can be damped down to ensure better protection
- “Anti Flash” welding screens must be used to provide protection to personnel working adjacent to welding activities



SECURING COMPRESSED GAS CYLINDERS

- **Always** store cylinders:
 - in racks;
 - in the **upright** position;
 - **secured** with steel chains or clamps;
 - with the cylinder **valve fully closed**.



- Because **Empty** cylinders still contain a small amount of gas, the cylinder valve must still be closed.
- Store full and empty cylinders **Separately** according to gas type.

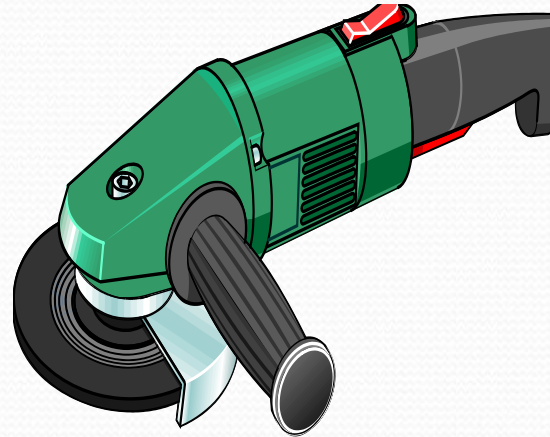
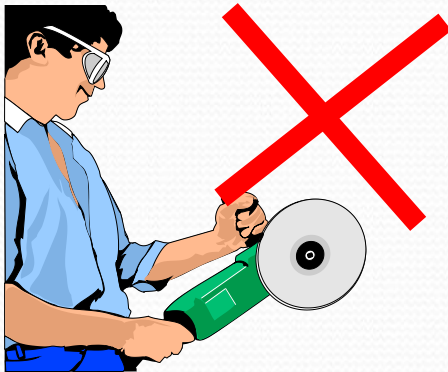
SAFE PRACTICES

- Keep **oil and grease** away from oxygen-regulator hose and fittings.
- Do not store wrenches, dies, cutters or other **grease-covered tools** in the same compartment with oxygen equipment.

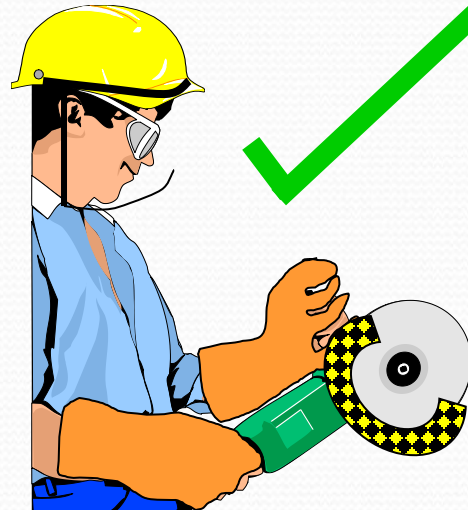


Correct use of a Disk Grinder

Ensure that Personnel Working With Disk Grinders Wear the Correct Safety Equipment. Remember, A Fire Watcher Must NOT Perform any Other Duties



**Never use
a grinder
above
waist/mid
chest
height**



PERSONAL PROTECTIVE EQUIPMENT

Face shield and safety glasses



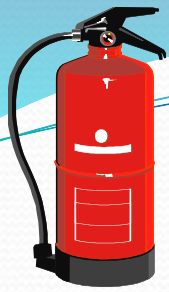
Close fitting canvas or leather gloves



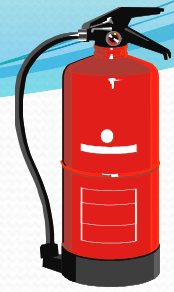
Ear muffs

Overalls or close fitting clothing





Correct use of A Fire Extinguishers



Prior to starting any hot work, ensure the following:

- ✓ At least one 6Kg fire extinguisher is available at the job location
- ✓ Check the extinguisher gauge to ensure the extinguisher is fully charged
- ✓ Check the outside of the fire extinguisher to ensure all the fittings are correct
- ✓ Ensure that the fire extinguisher is close to the work area
- ✓ Do not take a fire extinguisher from a fixed station to use on your job. Get one from the store

HOW TO USE FIRE EXTINGUISHER?

It's easy to remember how to use a fire extinguisher if you remember the acronym PASS:

➤ **Pull The Pin**



➤ **Aim At The Base Of The Fire**



HOW TO USE FIRE EXTINGUISHER?

- **Squeeze The Top Handle or Lever**



- **Sweep From Side To Side**



HOW TO TACKLE A FIRE

Only if you feel it is safe to do so

The three most common methods to put-out any fire are as the following:

- Starvation (Removing of Fuel)
- Smothering (Out-off Oxygen Supply)
- Cooling (Removing The Heat)

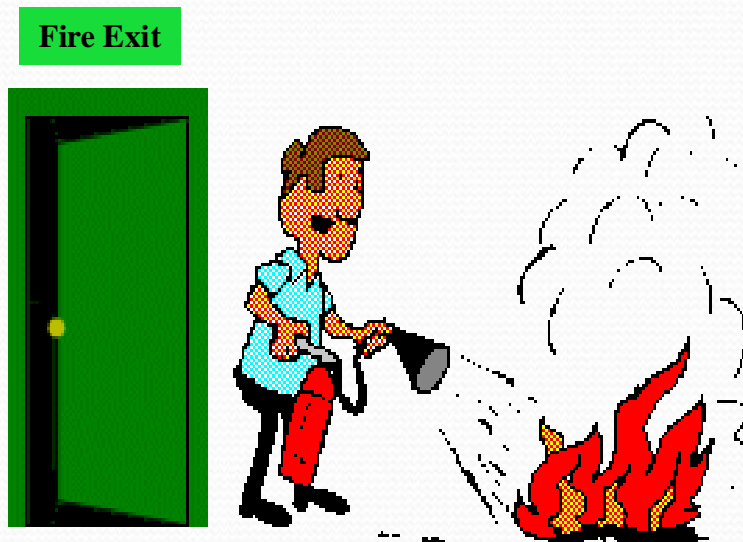


FIRE SAFETY **TIPS**

- Never tackle a fire unless trained to do so.
- Always make sure flammable material is kept away from sources of ignition.
- Know the location of Fire Equipment.
- Know the emergency exits, and make sure that they are clear and unobstructed.

Rules for Fighting Fires

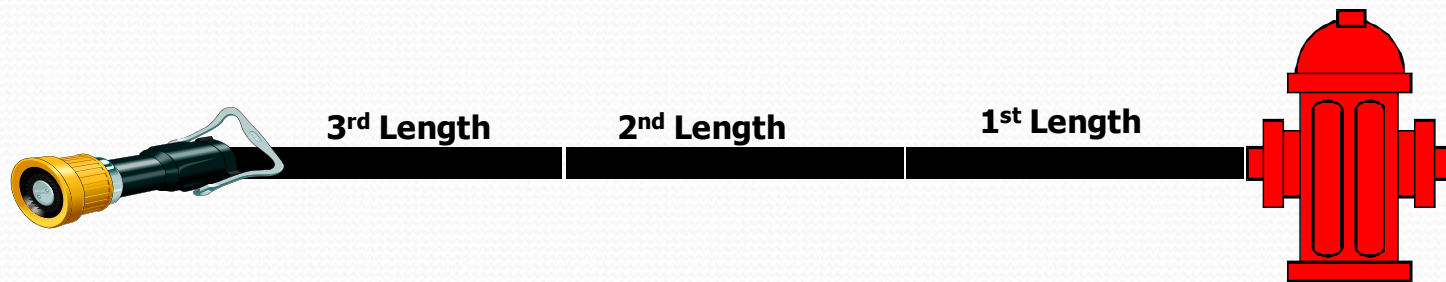
The final rule is to always position yourself with an exit or means of escape at your back before you attempt to use an extinguisher to fight a fire.



Fire Hose

Due to a particular fire risk, it might be necessary to run a length's) of charged fire hose out ready to use. The following must be taken into account when using fire hose in this manner:

- Fire hose must not be taken out of fire hose cabinets. Use hose from store or Safety Department
- Ensure fire hose is long enough to reach the potential fire area
- Ensure fire hose is fully charged - full of water under pressure



Fire Hose

- Ensure personnel know how to safely use the fire hose - ask the Safety Department to assist if required
- Ensure hose is protected from damage, e.g., motor vehicles, plant, etc.
- Remove fire hose from work area on completion of work





FIRE

**A good Servant, but a bad
Master**



**Fire Watch will
never leave his area
unless replaced**

Be Prepared!!!





THANK YOU

